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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/620,406

07/16/2003

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EXAMINER

BATAILLE, PIERRE MICHE

ART UNIT

PAPER NUMBER

2186

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/620,406	<b>Applicant(s)</b> VARTTI ET AL.	
	<b>Examiner</b> Pierre-Michel Bataille	<b>Art Unit</b> 2186	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 30 June 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) 2,4,17-19 and 29 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3,5-16,20-28,31,32 and 35-37 is/are rejected.
- 7) ☒ Claim(s) 30,33 and 34 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Response to Amendment***

1. Applicant's amendments and/or arguments have been considered with the results that follow. Claims 1-3, 5-16, 20-28, and 30-37 are now pending in the application under prosecution as claims 2, 4, 17-19, and 29 have been canceled by applicant's amendments.

### ***Response to Arguments***

2. Applicant's arguments with respect to claims 1, 3, 5-16, and 20-27 have been considered but are moot in view of the new ground(s) of rejection.

3. Applicant's arguments filed June 20, 2008 with respect to claims 27-28 and 30-37 have been fully considered but they are not persuasive.

With respect to claims 27-28, it is noted once more that Ebrahim discloses the invention as claimed, multiple modes in a memory system including write back mode and including early indication of dirty data restricting outstanding dirty victim writeback transactions or restriction of requests associated with exclusive modified state or an invalidation operation; restriction of requests associated with exclusive modified state or an invalidation operation; and copyback operation at the conclusion of the transaction, the memory system comprising: a programmable storage device to store one or more indicators storing line identifier corresponding to Etag and Dtag; cache memory; cache access request to cache memory initiated by data processor, each data processor including master interface for sending memory transaction requests to system controller

Art Unit: 2186

and receiving cache access requests from the controllers; a main memory coupled to a system controller to service requests missing the cache; a cache tag array; cache control logic, control logic including comparator to process address values and generate hit/miss signals, to determine, based on the state of the one or more indicators, whether to update the cache tag logic to track the data, state value stored in the corresponding cache tag will be updated if necessary to indicate that modified data is stored in the cache line; i.e. determine whether to store the data in the cache based on the state of the one or more indicators, to and if so, to replace the received data in the cache.

***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1, 3, 5-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "each responsive" in line 3. There is insufficient antecedent basis for this limitation in the claim. It is unclear whether each references "a requester input and a requester output" or "a plurality of cache memories"

Claim 1 further recites a "selected ones of a plurality of requesters"; it is unclear whether clause "plurality of requesters" is related to "requester" recited in the claims.

Claim 7 recites the limitation "the at least one requester". There is insufficient antecedent basis for this limitation in the claim.

Claim 16 recites the limitation "the either of both the determining steps". There is insufficient antecedent basis for this limitation in the claim. "at least one or both of the determining steps" would provide proper antecedent basis.

Claims 3, 5, 8-15 are rejected for further incorporating the features of respective rejected base claims.

### ***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 27-28, 31-32, and 35-37 are rejected under 35 U.S.C. 102(b) as being anticipated by US 5,644,753 (Ebrahim et al).

With respect to claims 27-28, Ebrahim discloses the invention as claimed, a memory system, comprising: a programmable storage device to store one or more indicators storing line identifier corresponding to Etag and Dtag (Fig. 1 and 12; Col. 4, Lines 1-5; Col. 13, Lines 37-66]; cache memory (440, Fig. 12); cache access request to cache memory 400 initiated by data processor 402, each data processor including master interface for sending memory transaction requests to system controller and receiving cache access requests from the controllers (Col. 4, Lines 6-13); a main

Art Unit: 2186

memory (108, Fig. 1) coupled to a system controller to service requests missing the cache (Col. 3, Lines 14-32); a cache tag array (406, Fig. 12); cache control logic (444, Fig. 12), control logic including comparator to process address values and generate hit/miss signals, to determine, based on the state of the one or more indicators, whether to update the cache tag logic to track the data (Col. 4, Lines 21-30), state value stored in the corresponding cache tag 412 will be updated if necessary to indicate that modified data is stored in the cache line; i.e. determine whether to store the data in the cache based on the state of the one or more indicators, to and if so, to replace the received data in the cache (Col. 3, Line 11-40).

With respect to claim 31-32, and 35-37, Ebrahim teaches the invention wherein multiple modes including write back mode and including early indication of dirty data restricting outstanding dirty victim writeback transactions or restriction of requests associated with exclusive modified state or an invalidation operation (Col. 28, Lines 28-52; Col. 27, Lines 8-52); restriction of requests associated with exclusive modified state or an invalidation operation (Col. 28, Lines 28-52; Col. 27, Lines 8-52); regular copyback operation at the conclusion of the transaction) Col. 27, Lines 33-45].

***Allowable Subject Matter***

8. Claims 30, 33-34 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. Claims 16 and 20-26 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

***Conclusion***

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

***Contact Information***

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pierre-Michel Bataille whose telephone number is (571) 272-4178. The examiner can normally be reached on Mon, Tue-Fri (8:00A to 5:30P).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew M. Kim can be reached on (571) 272-4182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2186

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Pierre-Michel Bataille/  
Pierre-Michel Bataille  
Primary Examiner  
Art Unit 2186